3Ts Crosswalk

Comparing the 3Ts for Reducing Lead in Drinking Water in Schools (2006) to the
3Ts for Reducing Lead in Drinking Water in Schools and Child Care Facilities (2018)

Please note this does not include all revisions to the 3Ts. This is a list of some of the major revisions to the materials.

2006 *3Ts for Reducing Lead in Drinking Water in Schools* ([HYPERLINK "https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100090T.txt"])	2018 *3Ts for Reducing Lead in Drinking Water in Schools and Child Care Facilities* ([HYPERLINK "https://www.epa.gov/ground-water-and-drinking-water/3ts-reducing-lead-drinking-water-toolkit"])
1. General	
1.1. General: The 3Ts toolkit included a **"Training, Testing, and Telling"** approach, and included supplemental factsheets, guidance, and templates. A guidance document was developed for schools and a separate smaller document, with similar information, was developed for child care facilities. (Manual: 104 pgs.)	**1.1. General:** The revised 3Ts toolkit includes a **"Training, Testing, and Taking Action"** approach with communication and recordkeeping highlighted throughout the program materials. The revised 3Ts also includes a 7 Module format that bins 3Ts resources into 7 key categories making it easier find related information as you go through the different elements of the program. Language and formatting throughout the manual and the modules has been made to be more user-friendly and straightforward. Child care (CC) facilities are included in the larger manual, the modules, and a supplemental CC facilities factsheet has been developed. (7 Modules, Manual: 88 pgs.)
2. Introduction	
2.1. Introduction: Introducing the manual, briefly discussed the regulatory authority for lead in drinking water in schools and emphasizes testing in schools: "Even though the drinking water you receive from your water supplier meets federal and state standards for lead, your facility may have elevated lead levels due to plumbing materials and water use patterns." (pg. 4)	**2.1. Introduction:** Introducing the manual, briefly discusses the regulatory authority for lead in drinking water in schools and emphasizes testing in schools. It also includes a new text box called "What is Your Water Source" to help provide clarification upfront on the difference between schools or CC facilities that could be a water utility. The revised version is tool that could be used by schools and CC facilities that are or those that aren't classified PWSs. (pg. 4)
2.2. Checklist: n/a	**2.2. Checklist:** A new checklist was developed to assist decision makers in understanding the key steps needed to implement a successful 3Ts program. It is recommended that before sampling, facilities should establish a plan and consider potential partners, funding options, and how frequent testing will occur. (pg. 6)
3. Training	
3.1. Health Effects: Discusses lead health effects (reduced IQ and attention span, learning disabilities, poor classroom performance, hyperactivity, behavioral problems, impaired growth, and hearing loss), that children are the vulnerable population, that lead is also harmful to the developing fetuses of pregnant women, and that "no safe blood lead level in children has been determined." It references very low levels as CDC's reference level before 2012 10 µg/dL. (pg. 6)	**3.1. Health Effects:** The health language remains the same with a few adjustments to text to make it more straightforward. It references CDC's current reference level: 5 µg/dL. (pg. 13) The Developing a Sampling Plan section also includes the recommendation to consider vulnerable populations in prioritizing sites. (pg. 32)
3.2. Sources of Lead: Notes the 6 broad categories of lead	**3.2. Sources of Lead:** The sources of lead section is similar

sources (e.g. lead based paint, lead in the air, lead in soil, lead industry, lead in consumer products and food, and lead in water). It also includes steps the U.S. government have taken to reduce lead. (pg. 6-7)	to the 2006 version of the 3Ts, with a few minor additions and language streamlining. Also, "Regulating lead in the nation's drinking water systems" was added to the actions the U.S. government has taken. (pg. 15)
3.3. Lead in Drinking Water: Lead can get into drinking water from the source water or through corrosion. This section describes how corrosion impacts lead in drinking water levels, factors that impact corrosion, sources of lead in drinking water, and the potential for sediment or lead particulate. (pg. 7-8)	**3.3. Lead in Drinking Water**: This section is similar to the 2006 version. The section discussing corrosion has been shortened and simplified to hit on the key pieces and particulate lead has been brought out into a text box instead of being buried in this section. The school and public water system relationship was brought into another section. See item 3.4 below. (pg. 15-16)
3.4. School and the Public Water System Relationship: Pg. 12 included a text box, "Public Water Supply Testing vs. Testing at Schools," which included a very general comparison of the 15ppb under the Lead and Copper Rule (LCR) and 20ppb, the 2006 3Ts level. (pg. 12)	**3.4. School and the Public Water System Relationship:** This section includes a note on how centralized treatment by a public water system does not guarantee that corrosion of lead from plumbing will not occur within buildings served by the public water system, such as schools. It also, here and in other sections, includes a note at the difference in sampling protocols (e.g. identifying system-wide problems vs. problems at outlets in individual buildings). (pg. 16-17) The 3Ts for Public Water Utilities factsheet includes a side-by-side comparison of the 3Ts and LCR.
3.5. How Lead in Drinking Water is Regulated: Notes 3 main regulations/laws: (1) The Lead Ban (1986), (2) The Lead Contamination Control Act (LCCA) (1988), and (3) The Lead and Copper Rule (1991). (pg. 11-12)	**3.5. How Lead in Drinking Water is Regulated:** This section is largely the same with the addition of the 2011 Reduction of Lead in Drinking Water Act. This update is reflected in other areas of the document as well. (pg. 17-18)
4. Developing a Program	
4.1. Assigning Roles: This was a short 2-paragraph section that encouraged schools to assign responsibility to key individuals to ensure that testing and follow-up actions are completed (e.g. a communication POC, lab/testing POC). (pg. 13)	**4.1. Assigning Roles:** Assigning Roles is a new section in the 3Ts promoting that this is a team effort and helping schools and CC facilities identify the roles that will help make their program a success. This section also includes programmatic questions like "Who should collect the Sample." (pg. 25-28)
4.2. Establishing Partnerships: This section included potential partners (e.g. water supplier, local health office, state drinking water program, certified labs, and community organizations). (pg. 13-16)	**4.2. Establishing Partnerships:** Partners identified in the 2006 3Ts were brought into the 2018 version with additions like the Dept. of Health and the Dept. of Education. There has also been a lot added to the "Working with Your Public Water System' section, including questions to ask them. (pg. 20-24)
5. Plumbing Profile and Developing a Sampling Plan	
5.1. Development of a Plumbing Profile for Your Facility's Plumbing: Encouraged the use of the plumbing profile to help schools better understand potential sources, sample sites, and how the water enters and flows through	**5.1. Conduct a Walkthrough:** The revised 3Ts recommends conducting a walkthrough of the facility and creating an inventory. This section takes a step back from the technical, sometimes complicated plumbing profile, and gives schools and CC facilities a place to start. It encourages

their facility. (pg. 17-23)	these facilities to use their floor plan, take pictures, and use the plumbing profile. It encourages documentation of aerators or filters, and any fixtures on EPA's lead-lined cooler lists. These water coolers should be removed. (pg. 29-31) The plumbing profile was updated, and additional language was added to the how to take samples when there are multiple floors. (pg.73-80)
5.2. Determining Sample Locations: Recommended that schools use the plumbing profile to decide where to sample. Recommended that, if possible, every outlet used for drinking or cooking, and at minimum, every outlet that is regularly used for cooking and drinking should be sampled. (pg. 24)	**5.2. Determining Sample Locations:** Changes to this section include new recommendations to sample kitchen kettles, how to deal with faucets that are not used for human consumption, and the recommendation to not try to take "representative samples." This section now also suggests schools and CC facilities prioritize outlets that are used by children under the age of 6 years or pregnant women. (pg. 31-32)
5.3. Coding System: Coding suggestions were located on the webpage, not in the 3Ts materials.	**5.3. Coding System:** The suggested coding scheme is in Appendix C. (pg. 58)
5.4. Frequency: n/a	**5.4. Frequency:** The revised 3Ts includes discussion on setting a sampling frequency. The 3Ts does not recommend a set frequency for sampling schools and CC facilities but does note that annual monitoring may provide information on changes in the lead levels and the effectiveness of remediation as well timely notice of lead levels that need to be addressed. Regardless of the frequency set, EPA recommends that the sampling frequency be documented so that it does not go overlooked for extended periods of time, and that schools and CC facilities make testing drinking water a part of their regular building operations. (pg. 33)
5.5. Questions about sampling: Questions were included regarding who should create the sampling plan, where to sample, who should collect the sample, and where to go for sample analysis. (pg. 24-25)	**5.5. Understanding the Sampling Procedures:** This section provides some clarity on the 3Ts sampling. It includes topics like: who should collect 3Ts samples, clarifications on the sample volume, the different types of sampling (e.g. definition of first draw), when samples should be taken, and when to take action. (pg. 34-36)
5.6. Action Level (Remediation Trigger): EPA's 2006 3Ts strongly recommended that all water outlets in all schools that provide water for drinking or cooking meet a standard of 20 parts per billion (ppb) lead or less. The 20 ppb was described as the level to which a school should shut off water use and indicted that, if at or below 20 ppb, that "Outlet O.K. to use." (pg. 28, 35)	**5.6. When should I take action?** The revised 3Ts does not specify any remediation trigger for lead; rather, it encourages schools to prioritize remediation efforts based on the highest lead sample results and to use the steps in the toolkit to pinpoint potential lead sources to reduce their lead levels. In establishing and conducting programs for lead in drinking water in schools, states have the discretion, but are not required, to identify a remediation trigger for their

	program. Schools and CC facilities are encouraged to check with state and local health department as they may have guidance or requirements that include a lead remediation trigger. The revised 3Ts also provides clarity on the LCR's 15ppb. (pg. 36)
6. Conducting Sampling	
6.1. Service Connection Sampling: The 2006 3Ts recommended a service connection sample and a water main sample. It recommended that to test the water in your service connection, locate the tap closest to the service connection, let the water run until it is cold, then take the sample. The water main sample is similar with an additional 3 min flushing time. (pg. 37-38)	**6.1. Do You Have a Lead Service Line?** There were many challenges with collecting the connection sample correctly (e.g. variation in things like sample volume, types of the fixture that might be closest to the main, and flushing times). So, the new 3Ts simply suggest that you work with the water system to identify whether you have a LSL and doesn't suggest a sampling protocol. (pg. 32) The new 3Ts includes CC facilities which may be more likely to be in smaller building that may have LSLs, so this was an important addition in identifying potential sources for them.
6.2. Two-Step Sampling: It recommended that a two-step sampling process be followed for identifying lead contamination (a first draw 250mL sample followed by a 30-sec flush 250mL sample if the initial sample was found to have above 20 ppb). These are to be taken after an 8-18 stagnation period, and it was not recommended to collect samples in the morning after vacations, weekends, or holidays. (pg. 28-35)	**6.2. Two-Step Sampling:** In general, The 2-step 3Ts protocol is similar, with some added clarifications and the new Detailed Fixture Evaluation. Some of the new language speaks to how to take the 2-step sampling at the same time if there is resources and an interest in doing that. (pg. 37-40)
6.3. Outlet Specific Sampling: This 3Ts includes some considerations and sampling protocols for different types of outlets (e.g. bubblers, water coolers, bottle water dispensers, ice making machines, water faucets, and sampling interior plumbing). (pg. 39-52)	**6.3. Detailed Fixture Evaluation:** Portions of this section were pulled from some instructions in the 2006 version with some new additions. This section has instructions for different fixture types, color coded diagrams, and more info on what section of the plumbing you may be getting with each sample. (pg. 59-69)
6.4. Aerator Cleaning and Other Sampling Considerations: the 2006 3Ts included language regarding aerator cleaning and sampling. (pg. 30, 31, 47)	**6.4. Sampling Dos and Don'ts:** The revised 3Ts includes sampling Dos and Don'ts all in one place. Another way of trying to make this less complicated. (pg. 41)
7. Remediation	
7.1. Immediate Response: n/a	**7.1. Immediate Response:** a new "Immediate Response" section was added and includes: (1) shutting off problem outlets, (2) sharing test results, (3) putting up do not drink signs, and (4) increasing awareness and public education. (pg. 42-43)
7.2. Routine Measures: This short section lists measures	**7.2. Establishing Routine Practices:** This section is no

to reduce lead: (1) create aerator (screen) cleaning maintenance schedule, (2) use only cold water for food and beverage preparation, (3) flushing fixtures, (4) use placards for bathroom sinks. (pg. 55)	longer at the front of the remediation section and it is expanded. It notes that these activities should not be conducted immediately prior to collecting a water sample but should be planned as part of the school's or CC facility's overall water management program to improve drinking water quality. It also lists these as ways to improve water quality (not just reduce lead). It now includes recommendations for routine filter maintenance and more on regular communication. It also frames flushing a little differently and includes a reference to the flushing best practices guide. (pg. 48-50)
7.3. Interim (Short-Term) Control Measures: the interim steps included flushing taps in the morning, providing bottled water, and shutting off problem outlets. (pg. 55-57)	**7.3. Short Term Control Measures:** These include providing filters, providing bottled water, and flushing taps prior to use. Flushing is not recommended as remediation to lead only after breaks or in the mornings unless you can ensure lead levels remain low throughout the day. The 3Ts recommends flushing as a short term prior to use and that schools utilize signage and schedules. (43-44)
7.4. Permanent Remedies: These permanent remedies included (1) fixture replacement, (2) POUs and POEs, (3) Checking grounding wires, (4) lead pipe replacement, (5) reconfigure plumbing, (6) manual flushing, (7) automatic flushing, (8) bottled water, (9) use of lead free materials, and (10) shut off problem outlets. This sections also included remediation flow charts based on the 20ppb remediation trigger. (pg. 57-63)	**7.4. Permanent Control Measures**: These include: (1) replacement of problem outlets, (2) pipe replacement, (3) provide filters at problem taps, and (4) reconfigure the plumbing. Flushing is no longer a long term, or permanent control measures to the variability and difficulty with implementation (e.g. the staff and amount of time needed to do it correctly). (pg. 45-47)
7.5. Flushing: Flushing (both manual and automatic) was listed as a short term and long-term solution. A flushing protocol was developed, and pros and cons were listed (i.e. pro: "quickest and easiest solution to high lead levels, especially when contamination is localized in a small area or in a small building," con: waste of water, staff time and limitations with water coolers) (pg. 55-56, 58)	**7.5. Flushing:** the protocol is largely the same but when and how to use it has been reframed. There was confusion on how the previous 3Ts framed flushing and the overall confusion on when flushing should and should not be used and what EPA's recommendations on flushing were. These questions were used to create the Flushing Best Practices factsheet (e.g. when to flush, how to flush, tips and dos and don'ts). (pg. 44, 49-50)
7.6. Follow-Up Sampling: not discussed in detail.	**7.6. Follow-Up Sampling:** this section is now more provides more detail and instructions and includes more instructions on how to conduct follow-up sampling in the context of flushing. (pg. 46-47)
8. Telling (Communication)	
8.1. Telling: The telling section of the 2006 3Ts is the last section and includes: (1) Techniques for Disseminating Public Information, (2) The Components of an Effective General Communication Strategy, (3) Participants, (4) Timing, (5), Content, (6) Methods and Manner of Communication, and (7) Sample Public Notice Materials.	**8.1. Communicating the 3Ts:** module 1 discusses the key elements found in the 2006 3Ts version's "telling" section with some additions (e.g. more about developing a team, points of contacts, utilizing a website). In addition, new communication recommendations and suggestions are noted

(pg. 65-68)	throughout the revised 3Ts and in each module. (pg. 7-12)
8.2. Sample Templates: Templates (i.e. poster, letter, sample speech) were developed to assist schools with communicating. (pg. 69-72)	**8.2. Sample Templates:** A new suite of communication templates (i.e. poster, letter, sample speech, post cards) were developed to assist schools with communicating. These are now available in adjustable word documents in Module 1.
9. Recordkeeping	
9.1. Recordkeeping: the 2006 3Ts recommends that schools review previous records and use the plumbing profile to keep track. (pg. 13)	**9.1. Module 7: Recordkeeping:** The revised 3Ts includes the addition of new recordkeeping templates and the emphasis of recordkeeping throughout the 3Ts. (pg. 51)